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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,549	09/23/2003	Yuan-Chi Chang	YOR920030366US1	2911

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EXAMINER
PYO, MONICA M

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/668,549	CHANG ET AL.
	Examiner	**Art Unit**	
	Monica M. Pyo	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 May 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-4,7-14 and 17-21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4,7-14 and 17-21</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/27/07</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to the Amendment filed 5/27/2007.

2.   Claims 1-4, 7-14, 17-21 are currently pending in this application.   In the Amendment

filed 5/27/2007, claims 5, 11 and 21 are amended.   This action is made Final.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 1-3, 7-13 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Patent No. 5,890,150 issued to Ushijima et al. (hereinafter Ushijima) in view of U.S.

Patent No. 6,519,604 issued to Acharya et al. (hereinafter Acharya), and further in view of U.S.

Patent No. 5,842,202 issued to Kon (hereinafter Kon).

Regarding Claims 1, 11, and 21, Ushijima discloses a method of rewriting a query during

a database query processing operation, comprising the steps of:

A).   **processing the query having one or more target attributes in accordance with**

at least a portion of a data set producing query results, as a specific order number to

process the query (Ushijima: col. 5, lns. 40-col. 6, lns. 23);

B).   **analyzing the query results with respect to the one or more target attributes**

and one or more auxiliary attributes to determine a relative selectivity for each of

the one or more target attributes and the one or more auxiliary attributes, as varies

of columns to aggregate depend on the result of target attributes groupings (Ushijima: col. 6, lns. 20-29; col. 7, lns. 47-col. 8, lns. 5, 54-59; col. 10, lns. 12-24); and

C). **corresponding to at least one of the one or more auxiliary attributes having a high relative selectivity to form a rewritten query,** as a column of UNIT_PRICE, ORDER NO, ORDER AMOUNT (Ushijima: col. 7, lns. 47-col. 8, lns. 5).

Ushijima does not explicitly disclose:

C). **appending the query with at least one new predicate.**

However, Acharya discloses:

C). **appending the query with at least one new predicate,** as adding an error formula for the sum_error function (Acharya: col. 11, lns. 39-44).

Additionally, Acharya specifically discloses:

- **rewriting a query,** as rewriting a query with changes (Acharya: col. 11, lns. 32-36).

It would have been obvious to a person with ordinary skill in the art at the time of invention to modify the teachings of Ushijima with the teachings of Acharya to utilize the rewriting query process with the motivation to enhance the efficiency of querying each row of information from the database (Acharya: col. 11, lns 63-67).

Ushijima and Acharya does not explicitly disclose:

B). **wherein the one or more auxiliary attributes were not included in the query;**

However, Kon discloses:

B). **wherein the one or more auxiliary attributes were not included in the query,** as missing attributes from the query input dataset (Kon: col. 3, lns. 28-39).

It would have been obvious to a person with ordinary skill in the art at the time of

invention to modify the teachings of Kon with the teachings of Ushijima and Acharya to utilize

auxiliary attributes of initial query data input with the motivation to enhance the query

mechanism to by providing a measure of the error within query results generated from the

processing of a structured data set (Kon: col. 1, lns. 41-53).

Regarding Claims 2 and 12, Ushijima and Acharya and Kon disclose the method wherein

the at least a portion of the data set comprises sampled records from the data set (Ushijima: col.

7, lns. 48-60).

Regarding Claims 3 and 13, Ushijima and Acharya and Kon disclose the method further

comprising the step of sampling data records from the data set (Ushijima: col. 9, lns. 61-67; col.

10, lns. 1-14).

Regarding Claims 7 and 17, Ushijima and Acharya and Kon disclose the method wherein

the step of analyzing the one or more target attributes and one or more auxiliary attributes

comprises the steps of:

extracting statistics for each of the one or more target attributes and the one or more

auxiliary attributes from the query results (Ushijima: col. 7, lns. 48-56; fig. 12) and (Acharya:

col. 11, lns. 39-44);

extracting statistics for each of the one or more target attributes and the one or more

auxiliary attributes from the at least a portion of the data set (Ushijima: col. 7, lns. 57-65; fig. 13)

and (Acharya: col. 11, lns. 39-44); and

evaluating the relative selectivity for each of the one or more target attributes and the one

or more auxiliary attributes in accordance with the extracted statistics (Ushijima: col. 7, lns. 66-

col. 8, lns. 10, 60-67; col. 11, lns. 1-12; fig. 14) and (Acharya: col. 11, lns. 39-44).

Regarding Claims 8 and 18, Ushijima and Acharya and Kon disclose the method wherein

the step of evaluating the relative selectivity comprises the steps of:

comparing a range of statistics from the query results to a range of statistics from the at

least a portion of the data set for each of the one or more target attributes and the one or more

auxiliary attributes (Ushijima: col. 7, lns. 47-col. 8, lns. 5; col. 15, lns. 31-52) and (Acharya: col.

11, lns. 39-44); and

determining whether each of the one or more target attributes and the one or more

auxiliary attributes is a selective attribute by comparing a ratio of the ranges to a predetermined

value (Ushijima: col. 12, lns. 63-67; col. 13, lns. 1-2) and (Acharya: col. 11, lns. 39-44).

Regarding Claims 9 and 19, Ushijima and Acharya and Kon disclose the method wherein

the step of appending at least one new predicate comprises the steps of:

evaluating relative selectivity for each of the one or more target attributes and the one or

more auxiliary attributes (Ushijima: col. 9, lns. 47-54) and (Acharya: col. 11, lns. 39-44);

selecting at least one auxiliary data attribute with a high relative selectivity (Ushijima:

col. 7, lns. 47-col. 8, lns. 5; col. 9, lns. 55-60);

forming at least one new predicate (Ushijima: col. 10; lns. 6-11); and

appending the query with the at least one new predicate (Ushijima: col. 10, lns. 12-24).

Regarding Claims 10 and 20, Ushijima and Acharya and Kon disclose the method further

comprising the step of performing a query processing operation on a data set with a rewritten

query (Acharya: col. 11, lns. 38-55).

5.   Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushijima

and Acharya and Kon as applied to Claims 1-3, 7-13 and 17-21 above, and further in view of

U.S. Patent Application Publication No. 2003/0167259 by Casson et al. (hereafter Casson).

Regarding Claims 4 and 14, Ushijima and Acharya and Kon disclose the method wherein

the step of sampling data records comprises the step of sampling from the data, (Ushijima: col. 9,

lns. 61-67; col. 10, lns. 1-14).

Ushijima and Acharya do not specifically disclose: every Nth record, wherein N is a

positive integer.

However, Casson discloses: every Nth record, wherein N is a positive integer (Casson:

pg. 3, [0041]).

It would have been obvious to a person with ordinary skill in the art at the time of

invention to modify the teachings of Casson with the teachings of Ushijima, Acharya and Kon to

utilize numbered record sampling in the search query system with the motivation to enhance the

precision in selection database records for retrieval (Casson: pg. 3, [0039]).

Response to Arguments

6.   Applicant's arguments filed 5/29/2007 have been fully considered but they are not

persuasive.

Applicant argues that Ushijima fails to disclose the feature of "analysis of query results

with respect to one or more target attributes and one or more auxiliary attributes." Additionally,

applicant further argues that Ushijima fails to disclose the feature of "an analysis of such

attributes results in a determination of a relative selectivity for each of the one or more target

attributes and the one or more auxiliary attributes." However, the Examiner disagrees. As

stated in the rejections above, Ushijima discloses the feature of target attributes and auxiliary

attributes (in Ushijima: col. 6, lns. 20-29; col. 7, lns 47-col. 8, lns. 5).

Applicant also argues that Acharya fails to disclose the feature of "appending of the

query with at least one new predicate corresponding to at least one of the one or more auxiliary

attributes having a high relative selectivity." However, the Examiner disagrees with this

argument because as explained in the rejections above, Acharya discloses the feature of adding

an error formula for the function (in Acharya: col. 11, lns. 39-44).

Thus, in response to applicant's argument against the references individually, it should be

noted that the rejections regarding these claims are made under 35 U.S.C. 103(a) and the test for

obviousness is whether the combined teaching of the references would have suggested the

combination to one of ordinary skill in the art. Although Ushijima does not disclose all of the

claimed limitations, the feature not disclosed by Ushijima is disclosed by Acharya and Kon. One

cannot show nonobviousness by attacking references individually where, as here, the rejections are based on combination of references.

Conclusion

7.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon & Thur 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
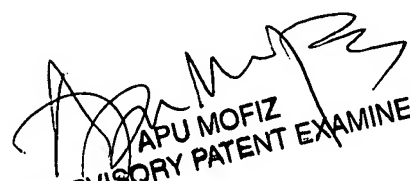
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<div style="text-align:right">

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mpyo
8/1/2007

Leslie Wong
Primary Examiner

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SUPERVISORY PATENT EXAMINER